

JUL 22 2008

AMENDMENTS TO THE CLAIMS

Complete Listing Of The Claims

Cancel Claims 1-21

22. (New) A method for the manufacturing of porcelain stoneware tiles with anti-pollution properties, characterised by the fact that the method comprises the following steps:

applying a variable percentage of TiO₂ in a covering glaze with a silk-screening paste and engobe finish to a tile to provide a covering layer on the tile;

adding particles of material to the covering glaze designed to increase the refraction of the solar light to which the tiles are exposed.

adding substances designed to absorb NOx to the covering layer and/or to the material of which the engobe is made;

creating micro channels in a thickness of the covering layer of the tile, said micro channels being designed to increase the permeability to water of said tiles;

creating micro uneven-areas in the thickness of the aforesaid covering layer, said micro uneven areas being designed to increase the exchange surface between the single tile and the atmosphere;

insufflating or blowing air on the covering layer during the traditional firing at 1200°C; said blowing of air being designed to produce an improvement in the photocatalytic effect of the TiO₂.

23. (New) A method according to claim 22, characterised by the fact that the presence of the TiO₂ in the single tile vary from 1% to 25%.

24. (New) A method according to claim 22, characterised by the fact that the presence of the TiO₂ is used in the form of anatase.

25. (New) A method according to claim 22, characterised by the fact that the materials designed to increase the refraction of the solar light to which the tiles are exposed comprise white pigments and particles of silica; said pigments and said silica both being applied to the same ceramic tile.

26. (New) A method according to claim 22, characterised by the fact that the application of the TiO₂ to the covering layer is obtained by means of a brush without air, functioning under high pressure; and the engobe is applied by means of a disk booth.

27. (New) A method according to claim 22, characterised by the fact that the application of the materials designed to increase the refraction of the solar light to which the tiles are exposed is obtained by means of silk-screening machines designed to apply glaze by means of silicone rollers according to the thickness wanted.

28. (New) A method according to claim 22, characterised by the fact that substances added to the covering which are designed to facilitate the absorption of the NOx are magalite and one of zeolite or petalite; said magalite is mixed in with the engobe, while the zeolite or petalite are mixed in with the glaze.

29. (New) A method according to claim 22, characterised by the fact that the application to the covering layer of the substances designed to absorb NOx is obtained by means of silk-screening machines designed to apply the glaze by means of silicone rollers according to the thickness wanted.

30. (New) A method according to claim 22, characterised by the fact that the micro uneven areas are obtained by means of the action of a silk-screening machine in which a silicone roller applies a first layer to the tile directly.

31. (New) A method according to claim 22, characterised by the fact that the micro channels are obtained my means of the action of a silicon roller.

32. (New) A method according to claim 22, characterised by the fact that the application to the glaze of materials designed to increase the refraction of solar light and of substances designed to absorb NO_x, and the creation, also in the covering layer, of micro channels and uneven areas are obtained simultaneously through the use of four synchronized silicon rollers in the following order: a first roller creates micro uneven areas on the base of every single tile, a second roller applies the substance designed to absorb NO_x, a third roller applies the material designed to increase the refraction and a fourth roller compacts everything, redefines the micro uneven areas and produces the micro channels.

33. (New) A ceramic tile made of porcelain stoneware, characterised by the fact that said tile has a coating comprising TiO₂ in the form of anatase and rutile, said TiO₂ is designed to give said tile photocatalytic properties acting against polluting and bacterial agents present in the atmosphere.

34. (New) A ceramic tile according to claim 33, characterised by the fact that the coated tile is obtained by means of traditional firing with the addition of TiO₂ in the form of rutile only.

35. (New) A ceramic tile according to claim 33, characterised by the fact that the coated tile obtained by means of a modification of the firing phase to 1200°C.

36. (New) A ceramic tile according to claim 33, characterised by the fact that coated tile is obtained by means of a modification of the firing phase through insufflation of air which is followed by the application of a layer of TiO₂ once the firing is complete.

37. (New) A ceramic tile according to claims 33, characterised by the fact that the coated tile undergoes re-firing.

38. (New) A ceramic tile according to claim 33, characterised by the fact that a first coated tile was obtained by means of:

engobe with substantially 25% TiO₂ applied by means of a brush without air, functioning under high pressure;
silk-screening using iron molybdate;
calcic glaze with substantially 25% TiO₂ applied by means of an brushing without air, functioning under high pressure; and,
application of 100% TiO₂ by silk-screening.

39. (New) A ceramic tile according to claim 33, characterised by the fact that a second coated tile was obtained by means of:

engobe with substantially 25% TiO₂ applied by means of a disk booth;
silk-screening using iron molybdate;
zinc glazing with substantially 25% TiO₂ applied by means of a brush without air, functioning under high pressure; and
application of 100% TiO₂ by silk-screening.

40. (New) A ceramic tile according to claim 33, characterised by the fact that a third coated tile was obtained by means of:

engobe with substantially 25% TiO₂ applied by means of a disk booth;
silk-screening using iron molybdate;

glossy alkaline silica-borne glazing with substantially 25% TiO₂ applied by means of a brush without air, functioning under high pressure; and,
application of 100% TiO₂ by silk-screening.

41. (New) A ceramic tile according to claim 33, characterised by the fact that a fourth coated tile was obtained by means of:

engobe with substantially 25% TiO₂ applied by means of a brush without air, functioning under high pressure;
silk-screening using iron molybdate;
glossy silica-boron-zirconium glazing with substantially 25% TiO₂;
and,
application of 100% TiO₂ by silk-screening.

42. (New) A ceramic tile according to claims 33, characterised by the fact that a fifth coated tile was obtained by means of:

engobe with substantially 25% TiO₂ applied by means of a brush without air, functioning under high pressure;
silk-screening using iron molybdate;
application of 100% TiO₂ by means of an airbrush without air, functioning under high pressure; and
application of 100% TiO₂ by silk-screening.